

PATENT  
#01-0341-UNI  
Case #J3544(C)



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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Dickinson et al.  
Serial No.: 09/880,195  
Filed: June 13, 2001  
For: HAIR OILS

Edgewater, New Jersey 07020  
September 17, 2001

**SUBMISSION OF PRIORITY DOCUMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Pursuant to rule 55(b) of the Rules of Practice in Patent Cases, Applicant(s) is/are submitting herewith a certified copy of the United Kingdom Application No. 0014426.1 filed June 13, 2000, upon which the claim for priority under 35 U.S.C. § 119 was made in the United States.

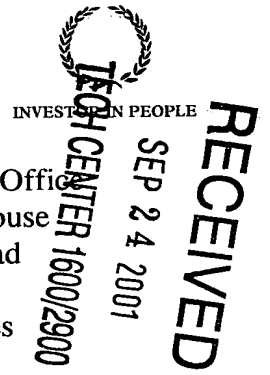
It is respectfully requested that the priority document be made part of the file history.

Respectfully submitted,

Matthew Boxer  
Reg. No. 28,495  
Attorney for Applicant(s)

MB/mt  
(201) 840-2963

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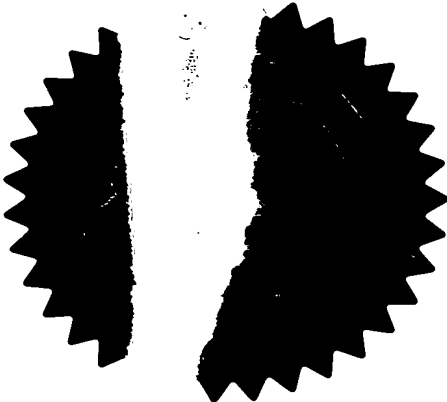
The Patent Office  
Concept House  
Cardiff Road  
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I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

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Signed

Dated 24 May 2001

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The Patent Office

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# Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

J3544 (C)/tc

2. Patent application number

(The Patent Office will fill in this part)

0014426.1

13 JUN 2000

3. Full name, address and postcode of the or of each applicant (*underline all surnames*)

UNILEVER PLC  
UNILEVER HOUSE, BLACKFRIARS  
LONDON, EC4P 4BQ

Patents ADP number (*if you know it*)

1628002

If the applicant is a corporate body, give the country/state of its incorporation

UNITED KINGDOM

4. Title of the invention

HAIR OILS

5. Name of your agent (*if you have one*)

ELLIOTT, Peter William

"Address for Service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)

PATENT DEPARTMENT, UNILEVER PLC  
COLWORTH HOUSE, SHARNBROOK  
BEDFORD, MK44 1LQ

Patents ADP number (*if you know it*)

59411439001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country	Priority application number ( <i>if you know it</i> )	Date of filing (day / month / year)
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing (day/month/year)
-------------------------------	------------------------------------

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (*Answer 'Yes' if:*

YES

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

# Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description	9
Claim(s)	2
Abstract	-
Drawing(s)	-



10. If you are also filing any of the following, state how many against each item.

## Priority Documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

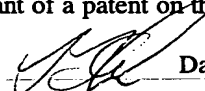
Request for preliminary examination and search (*Patents Form 9/77*) 1

Request for substantive examination (*Patents Form 10/77*)

Any other documents  
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature(s)



Date: 13 June, 2000

Sandra Jane EDWARDS, Authorised Signatory

12. Name and daytime telephone number of person to contact in the United Kingdom Trudi Clark, Tel 01234 22 2360

## Warning

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## Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
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DUPLICATE

- 1 -

HAIR OILSField of the Invention

5

This invention relates to hair oils which incorporate a specific blend of oil types and which have enhanced sensory properties.

10

Background of Invention and Prior Art

Consumers oil hair both pre wash and post wash. Pre wash oiling is done as it is believed that oils nourish hair and protect it during the wash process. Post wash oiling is done for manageability and styling. The oiling habit is widely practised by around 800 million people across the Central Asia and Middle East region.

20 Coconut oil is by far the most common oil used in the Central Asia and Middle-East region for hair-care. It offers a high level of conditioning benefits, but with the drawback of greasy feel.

25 The present inventors have found that hair oils which incorporate a specific blend of oil types can deliver an equivalent level of conditioning benefits to coconut oil, but with superior sensory properties, in particular less greasy feel. A further advantage associated with hair oils according to the invention is enhanced penetration into the hair fibre.

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Definition of the Invention

The present invention provides a hair oil comprising a blend of:

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(i) from 20% to 95%, by weight based on total weight, of a first oily component which is one or more glyceride fatty esters, and

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(ii) from 5% to 80%, by weight based on total weight, of a second oily component which is one or more hydrocarbon oils of average carbon chain length less than 20 carbon atoms.

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Detailed Description of the Invention(i) Glyceride fatty ester

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By "glyceride fatty esters" is meant the mono-, di-, and tri-esters formed between glycerol and long chain carboxylic acids such as C<sub>6</sub>-C<sub>30</sub> carboxylic acids. The carboxylic acids may be saturated or unsaturated or contain hydrophilic groups such as hydroxyl.

25

Preferred glyceride fatty esters are derived from carboxylic acids of carbon chain length ranging from C<sub>6</sub> to C<sub>24</sub>, preferably C<sub>10</sub> to C<sub>22</sub>, most preferably C<sub>12</sub> to C<sub>18</sub>.

30

Suitable glyceride fatty esters for use in hair oils of the invention will generally have a viscosity at ambient



temperature (25 to 30°C) of from 0.01 to 0.8 Pa.s ,  
preferably from 0.015 to 0.6 Pa.s, more preferably from 0.02  
to 0.065 Pa.s as measured by a Carri-Med CSL2 100 controlled  
stress rheometer, from TA Instruments Inc., New Castle,  
5 Delaware (USA) .

A variety of these types of materials are present in  
vegetable and animal fats and oils, such as camellia oil,  
coconut oil, castor oil, safflower oil, sunflower oil,  
10 peanut oil, cottonseed oil, corn oil, olive oil, cod liver  
oil, almond oil, avocado oil, palm oil, sesame oil, lanolin  
and soybean oil. These have various ranges of carbon chain  
lengths depending on the source, typically between about 12  
to about 18 carbon atoms. Synthetic oils include  
15 trimyristin, triolein and tristearin glyceryl dilaurate.  
Vegetable derived glyceride fatty esters are particularly  
preferred, and specific examples of preferred materials for  
inclusion in hair oils of the invention as sources of  
glyceride fatty esters include almond oil, castor oil,  
20 coconut oil, sesame oil, sunflower oil and soybean oil.  
Coconut oil, sunflower oil, almond oil and mixtures thereof  
are particularly preferred.

The glyceride fatty ester may be present in hair oils of the  
25 invention as a single material or as a blend.

The total content of glyceride fatty ester in hair oils of  
the invention suitably ranges from 10% to 95%, preferably  
from 20% to 80%, by total weight of glyceride fatty ester  
based on total weight of the hair oil.

30

(ii) Hydrocarbon Oil

Suitable hydrocarbon oils include cyclic hydrocarbons, straight chain aliphatic hydrocarbons (saturated or unsaturated), and branched chain aliphatic hydrocarbons (saturated or unsaturated). Straight chain hydrocarbon oils will typically contain from about 6 to about 16 carbon atoms, preferably from about 8 up to about 14 carbon atoms. Branched chain hydrocarbon oils can and typically may contain higher numbers of carbon atoms, e.g. from about 6 up to about 20 carbon atoms, preferably from about 8 up to about 18 carbon atoms.

Suitable hydrocarbon oils of the invention will generally have a viscosity at ambient temperature (25 to 30°C) of from 0.0001 to 0.5 Pa.s , preferably from 0.001 to 0.05 Pa.s, more preferably from 0.001 to 0.02 Pa.s as measured by a Carri-Med CSL2 100 controlled stress rheometer, from TA Instruments Inc., New Castle, Delaware (USA).

A preferred hydrocarbon oil is light mineral oil. Mineral oils are clear oily liquids obtained from petroleum oil, from which waxes have been removed, and the more volatile fractions removed by distillation. The fraction distilling between 250°C to 300°C is termed mineral oil, and it consists of a mixture of hydrocarbons, in which the number of carbon atoms per hydrocarbon molecule generally ranges from C<sub>10</sub> to C<sub>40</sub>. Mineral oil may be characterised in terms of its viscosity, where light mineral oil is relatively less viscous than heavy mineral oil, and these terms are defined more specifically in the U.S. Pharmacopoeia, 22nd revision, p. 899 (1990). A commercially available example of a suitable light mineral oil for use in the invention is

Sirius M40 (carbon chain length  $C_{10}$ - $C_{28}$ , mainly  $C_{12}$ - $C_{20}$ , viscosity  $4.3 \times 10^{-3}$  Pa.s), available from Silkolene.

Other hydrocarbon oils that may be used in the invention  
5 include relatively lower molecular weight hydrocarbons including linear saturated hydrocarbons such as tetradecane, hexadecane, and octadecane, cyclic hydrocarbons such as dioctylcyclohexane (e.g. CETIOL S from Henkel), branched chain hydrocarbons (e.g. ISOPAR L and ISOPAR V from Exxon  
10 Corp.).

The hydrocarbon oil may be present in hair oils of the invention as a single material or as a blend.

The total content of hydrocarbon oil in hair oils of the  
15 invention suitably ranges from 5% to 90%, preferably from 20% to 80%, by total weight of hydrocarbon oil based on total weight of the hair oil.

The glyceride fatty ester:hydrocarbon oil weight ratio in  
20 hair oils of the invention may suitably range from 95:5 to 5:95, preferably from 90:10 to 10:90, most preferably from 80:20 to 20:80. Particularly preferred are blends of [coconut oil and/or sunflower oil and/or almond oil] and light mineral oil, in which the [coconut oil and/or  
25 sunflower oil and/or almond oil]:light mineral oil weight ratio is 60:40.

#### Other oily materials

30 Other oily materials may also be present in combination with the hydrocarbon oils and glyceride fatty esters in hair oils

of the invention. Suitable additional oily materials include other fatty esters, fatty alcohols and fatty ethers.

In general, fatty esters, fatty alcohols and ethers are  
5 characterised by having at least 10 carbon atoms, and  
include esters and ethers with hydrocarbyl chains derived  
from fatty acids or alcohols, e.g., monocarboxylic acid  
esters, polyhydric alcohol esters, and di- and tricarboxylic  
acid esters and ethers, and fatty alcohols with a carbon  
10 chain carbon chain length of between 10 and 18, e.g. lauryl  
alcohol, cetyl alcohol or cetostearyl alcohol.

Examples include isopropyl myristate, isopropyl palmitate,  
cetearyl isononanoate, cetearyl octanoate, diethylene glycol  
15 monoethyl ether oleate, dicaprylyl ether, caprylic  
acid/capric acid propylene glycol diester and mixtures of  
any of the above.

The total content of other oily material in hair oils of the  
20 invention suitably ranges from 0.01% to 50%, preferably from  
1.0% to 20%, by total weight of other oily material based on  
total weight of the hair oil.

#### Product Form

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Compositions of this invention are preferably in anhydrous  
form, i.e. used as neat hair oil.

#### Optional Ingredients

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Compositions of this invention may contain any other ingredient normally used in hair treatment formulations. These other ingredients may include, viscosity modifiers, preservatives, colouring agents, polyols such as glycerine and polypropylene glycol, chelating agents such as EDTA, antioxidants such as BHT (butylhydroxytoluene), vitamin E acetate, fragrances, antimicrobials and sunscreens and lipid soluble ingredients e.g. fatty acids or sterols. Each of these ingredients will be present in an amount effective to accomplish its purpose. Generally these optional ingredients are included individually at a level of up to about 5% by weight of the total hair oil.

The invention is further illustrated by way of the following Examples, in which all percentages are by weight based on total weight unless otherwise stated.

EXAMPLES

<b>Formulation examples:</b>					
<b>Ingredient</b>	<b>Control/ Benchmark</b>	<b>Example 1</b>	<b>Example 2</b>	<b>Example 3</b>	<b>Example 4</b>
<i>Triglycerides</i>					
Coconut oil	100%	60%	60%	60%	60%
Castor oil	-	5%	-	-	-
Almond oil	-	-	-	5%	-
Sunflower oil	-	-	5%	-	-
<i>Hydrocarbon oils</i>					
Light mineral oil	-	20%	35%	35%	40%
<i>Other oily materials</i>					
Isopropyl palmitate	-	15%	-	-	-
	100%	100%	100%	100%	100%
<b>Formulation performances</b>					
Greasy feel	72.8	61.7	58.9	54.7	61.1
Ease-of-combing	74.8	75.6	70.4	74.7	70.3

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The formulation performances such as greasy feel and ease of combing were evaluated using sensory panels. Results are give in normalised values. A preferred formulation will have similar "ease-of-combing" as the control/benchmark coconut oil and a significantly lower "greasy feel".

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Oil penetration into the hair fibre was measured using fluorescence techniques on oiled hair cross-sections using a lipid soluble fluorescent dye. Results showed that mixing light hydrocarbon oil to the hair oils improves

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significantly the total oil penetration into the hair fibre.  
Data are given in the following Table:

	Retained fluorescence intensity
Non oiled hair	0 cps
control/benchmark	1722 cps
Example 3	110965 cps

CLAIMS

1. A hair oil comprising a blend of:

5 (i) from 20% to 95%, by weight based on total weight,  
of a first oily component which is one or more glyceride  
fatty esters, and

(ii) from 5% to 80%, by weight based on total weight,  
10 of a second oily component which is one or more hydrocarbon  
oils of average carbon chain length less than 20 carbon  
atoms.

2. A hair oil according to claim 1, in which the source of  
15 glyceride fatty esters is selected from coconut oil,  
sunflower oil, almond oil and mixtures thereof.

3. A hair oil according to claim 1 or claim 2, in which the  
total content of glyceride fatty ester ranges from 10% to  
20 95%, preferably from 20% to 80%, by total weight of  
glyceride fatty ester based on total weight of the hair oil.

4. A hair oil according to any one of claims 1 to 3, in  
which the hydrocarbon oil is light mineral oil.

25 5. A hair oil according to any one of claims 1 to 4, in  
which the total content of hydrocarbon oil ranges from 5% to  
90%, preferably from 20% to 80%, by total weight of  
hydrocarbon oil based on total weight of the hair oil.



6. A hair oil according to any one of claims 1 to 5, in which the glyceride fatty ester:hydrocarbon oil weight ratio ranges from 95:5 to 5:95, preferably from 90:10 to 10:90, most preferably from 80:20 to 20:80.

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7. A hair oil according to any one of claims 1 to 6, which is in anhydrous form.

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